



**STATE OF MONTANA
MONTANA DEPARTMENT OF TRANSPORTATION
JOB PROFILE**

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Update

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Formal Review

Date Submitted _____

SECTION I - Identification

Working Title: Design Plan Tech

Department: Transportation

Job Code Number: 173134

Division & Bureau: Engineering Division
Traffic & Safety Bureau

Job Code Title: Design Technician

Section & Unit: Traffic Engineering Section
Signing Unit

Pay Band: 4

Work Address: 2701 Prospect
Helena, MT 59620

Position Number: 36030

Phone: 406-444-6217

☐ ☐ FLSA Exempt ☒ FLSA Non-Exempt
Blue Collar

☐ ☐ Non-Union ☒ MPEA ☐ ☐

Profile Completed By: Renee McDaniel

Work Phone: 444-6048

Work Unit Mission Statement or Functional Description:

The Traffic and Safety Bureau is responsible for all aspects of the development and design of highway safety and traffic engineering functions. It includes Safety Engineering, State and Local Safety, and Traffic Engineering Sections.

The Traffic Engineering Section is responsible for the design of signing and pavement markings, illumination, signalization, roadway geometry, highway safety improvements, speed zones, pedestrian and school crossings associated with federal and state-funded highway projects. It includes Signing, Geometrics, Investigations, Safety, and Electrical.

The Signing Unit is responsible for the development of plans and specifications for all signing and pavement markings on all federal-aid highways for the Contract Plans Section. This is done by gathering preliminary design data, synthesizing this information by interpreting and applying appropriate State and Federal policies and engineering practices, procedures, and warrants; thereby generating a clear and concise set of bid documents for the Contract Plans

Section. The Signing Unit reviews Traffic plans and specifications submitted by consultants through application of preliminary design data and appropriate policies and guidelines for submittal of bid documents to the Contract Plans Section. The Signing Unit analyzes daily requests for new signing and markings by individuals, groups and other agencies in order to meet warrants established through law or current policies, some of which come through the district offices throughout the state. The Signing Unit provides the engineering design and technical expertise on traffic control device application, presentation, and installation to these groups by application of established policies, engineering practices, and current research to meet the environmental and roadway conditions specific to the site of concern.

Describe the Job's Overall Purpose:

This position performs design work of average difficulty in preparing traffic plans. Researches proposed traffic device installation; prepares cost estimates; writes general correspondence. Checks portions of other crew members' work. Utilizes CADD system in developing plans. Coordinates project plans with electrical, investigations, geometrics, safety, and various departmental units. The position reports to the Design Supervisor.

SECTION II - Major Duties or Responsibilities

This section should be a clear concise statement of the position's major duties and the approximate percent of work time for each duty

% of Time

The level of complexity of the projects assigned are of average difficulty on rural, primary and interstate systems, and primary arterials passing through small urban and rural communities. These types of projects usually have minimal signing. The State and Federal routes present a wide-range of situations, considering the size of the system. Unique situations continually arise, requiring the need to analyze and adapt placement strategies for pavement markings and signs so the motoring public will instinctively identify and comprehend the guidance or warning presented.

The duties of project development and design require the incumbent to analyze and identify the most efficient ways to communicate to the traveling public (motorist and pedestrian), through signs and pavement markings, the intended operating character of the roadway environment. This includes elements such as regulatory conditions (no-parking zones, no-passing zones, speed limits, crosswalks, etc.) related to State and local laws; delineation of the roadway alignment, direction of travel and lateral orientation of traffic on intersection approaches; informational signing related to major driver decisions, i.e. directional signing at intersections, guide signing for major destinations, and general services available; warning of critical deviations in the normal roadway conditions which alert the motorist of potential conflict to be prepared for; and to elevate the driver's level of expectancy as necessary. These elements are provided to compliment the design of the physical roadway geometry.

Project Development

30%

Determines the Signing Units involvement by reviewing the correspondence within each project file. Researches and analyzes all available project information for the plan development process. Obtains past as-built plans, determines if there are other projects planned in the area. Coordinates traffic plans design activities with other sections, bureaus, and districts. This

information is used for the proper development of the signing, pavement marking, and delineation plan sheets.

Performs sign inventories and on-site inspection statewide to gather information of existing traffic control devices and topographic features impacting the design.

Participates in plan-in-hand meetings, where signing and pavement marking plans are reviewed at the office and in the field and incorporates decisions made into the final plans package.

Prepares cost estimates to aid in the selection of alternatives. Writes special provisions for the traffic signing and pavement markings to clarify the general specifications of the bid documents. Prepares and compiles bid quantities.

Reviews traffic plans and specifications sheet by sheet to calculate specific pavement marking quantities necessary as requested by the project lead for incorporation into their plans.

Preliminary checks the sign design calculations, quantities and cost estimates for other Signing Unit technicians and designers to insure accuracy.

Traffic Design

50%

Performs traffic design work for the signing and pavement marking plans for roadway projects. Identifies problems that do not fit the standards, and proposes solutions. Establishes placement of traffic control devices in relation to design speed, roadway geometry, roadside features and driver information needs for inclusion in final design package.

Prepares a clear detail and description of installation requirements and quantities to the contractor and construction staff to facilitate construction. This involves determining and identifying specific and detailed data for every sign location, including calculating sign lay-outs using the Federal Highway Administration Alphabets, sign location, calculation of height of posts on the basis of roadway cross sections, specifies types of posts and breakaway devices and sign sheeting material. Drafting tasks extensively utilize MicroStation, computer aided drafting design (CADD) software, but also occasional pen and ink techniques.

Other Duties as Assigned

20%

Develops maps to locate and specify specialty signs.

Writes draft correspondence, reviews and comments on technical documents.

Coordinates projects with others within the Department, the Districts, and occasionally with other agencies such as the US Forest Service or Fish, Wildlife, & Parks Department. This coordination is necessary so that proper agency signs and Department traffic control devices do not conflict and meet the needs of the traveling public.

Prepares a variety of memoranda, mostly form letters, and reports of meetings and for inquiries about signing and pavement markings within the Department. Helps other designers in the completion of projects and checks sign designs, quantities and estimates.

Assists with preparation of reference materials, and performs other tasks related to the operations of the unit.

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1. ***The following duties and/or specific tasks listed under section II above are considered "essential functions" because they require specialized expertise and skill and are the primary reasons the job exists (they must be performed by this position with or without accommodations):***

Statewide travel is required, 10,000 miles per year, for project reviews and surveys, and numerous trips to District headquarters often in adverse weather and driving conditions. The project reviews and surveys involve working within the roadway prism, being able to negotiate rough terrain, compiling data, field interpretation of that data and reviewing project in areas of heavy high-speed traffic, fumes, dust, noise, adverse weather conditions and making on site decisions.

Develops traffic design plans using MicroStation, computer aided drafting and design (CADD) software.

Coordinates multiple design project activities simultaneously, analyzes engineering information and develops solutions and special applications to solve technical problems.

The following mental and physical demands are associated with these essential functions:

PHYSICAL

- Mostly office work with occasional periods of extensive field work with overnight stays. Travel and surveys occasionally under bad weather, poor roadway conditions.

MENTAL

- Strong mental capabilities and ability to perform work under tight schedules and stressful situations. Ability to prioritize work due to multitude of sites, corridors and safety reviews. Flexibility to address rush work assignments.

2. ***Does this position supervise others?*** ☐ ☐ Yes ☒ No

Number directly supervised:

Position Number(s) of those supervised:

3. ***Attach an Organizational Chart.***

SECTION III - Minimum Qualifications - List minimum requirements for the first day of work.

Critical knowledge and skills required for this position:

KNOWLEDGE: Knowledge of the principles, methods and theories of Highway Safety Engineering, Highway Design, Highway Construction, Traffic Engineering. Extensive knowledge of highway safety practices and keep current with latest technology, equipment and methods. Knowledge of Intelligent Transportation Systems. Read, interpret and analyze engineering reports, accident investigator's reports, plans, designs and specifications. Ability to use computer programs, to extract and evaluate data and information for use in engineering decisions.

SKILLS: Computer applications; Oracle, Excel, Word, PLSQL, Intersection Magic. Demonstrated advanced skills in the use of computer aided drafting and design software (MicroStation). Skill in the use of programmable calculator, personal computer. Knowledgeable in Document Management System and records retention.

Use of field equipment such as the DMI Distance measuring Instrument, Ball Bank Indicator to measure the lateral acceleration on a curve.

Ability to establish and maintain effective working relationships with employees, citizens, groups, consultants. Must be able to communicate effectively both in writing and verbally. Must have a valid Montana driver's license.

Behaviors required to perform these duties:

See MDT Core Behaviors

Education:

Check the one box indicating minimum education requirements for this position for a new employee the first day of work:

- | | |
|--|---|
| <input type="checkbox"/> <input type="checkbox"/> No education required | <input checked="" type="checkbox"/> Related AAS/2-years college/vocational training |
| <input type="checkbox"/> <input type="checkbox"/> High school diploma or equivalent | <input type="checkbox"/> <input type="checkbox"/> Related Bachelor's Degree |
| <input type="checkbox"/> <input type="checkbox"/> 1-year related college/voc. training | <input type="checkbox"/> <input type="checkbox"/> Related Master's degree |

Please specify the acceptable fields of study:

Acceptable: An Associates drafting degree involving Civil Engineering or Architectural coursework.

Other education, training, certification, or licensing required (specify):

Experience:

Check the one box indicating minimum work-related experience requirements for this position for a new employee the first day of work:

- | | |
|--|---|
| <input checked="" type="checkbox"/> No prior experience required | <input type="checkbox"/> <input type="checkbox"/> 3 years |
| <input type="checkbox"/> <input type="checkbox"/> 1 year | <input type="checkbox"/> <input type="checkbox"/> 4 years |
| <input type="checkbox"/> <input type="checkbox"/> 2 years | <input type="checkbox"/> <input type="checkbox"/> 5 or more years |

Other specific experience (optional):

Alternative Qualifications:

This agency will accept alternative methods of obtaining necessary qualifications.

☒ Yes ☐ ☐ No

Alternative qualifications include:

Two years of progressively responsible direct highway design related experience.

SECTION IV – Other Important Job Information

☐ ☐ Fingerprint check

☐ ☐ Valid driver's license

☐ ☐ Background check

☐ ☐ Other; Describe

SECTION V – Signatures

Signature indicates this statement is accurate and complete.

Employee:

Name: _____ Title: _____

Signature: _____ Date: _____

Immediate Supervisor:

Name: _____ Title: _____

Signature: _____ Date: _____

Bureau Chief:

Name: _____ Title: _____

Signature: _____ Date: _____

Division/District Administrator:

Name: _____ Title: _____

Signature: _____ Date: _____

Department Designee:

Jennifer Jensen/Designee

Chief Human Resources Officer
Human Resources Division

Signature: _____ Date: _____